

Environmental Protection Agency 2019 Targeted Airshed Grant Program
EPA-OAR-OAQPS-20-01

Daimler EMG Zero Emission Heavy-Duty Electric Trucks Delivering in San Joaquin Air Basin



San Joaquin Valley AIR POLLUTION CONTROL DISTRICT

San Joaquin Valley Unified Air Pollution Control District

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EPA Funding Requested:	\$20,000,000.00
Voluntary Cost Share:	\$18,873,744.00
Total Project Cost:	\$38,873,744.00

\$20,000,000.00 of federal funding is requested. \$15,645,000 will be leveraged from the California Air Resources Board (CARB) Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project (HVIP). The remaining \$3,228,744 will be provided in the form of voluntary cost-share by the fleet partners.

Project Period:

Project anticipated start date: Between Q3 2020 and Q4 2020

Project to end not later than: Q3 2025

Project Description: The Daimler EMG Zero Emission Heavy-Duty Electric Trucks Delivering in San Joaquin Air Basin project will deploy 96 medium- and heavy-duty electric trucks to build market momentum in zero-emission trucks throughout the Valley. This significant deployment of commercial medium and heavy-duty electric trucks from a major OEM, in partnership with best-in-class fleets, will provide near-term emission benefits and lay the groundwork for long-term market development.

Place of Performance: San Joaquin Valley, CA – The counties of San Joaquin, Stanislaus, Merced, Madera, Fresno, Kings, Tulare, and the Valley portion of Kern

Not for disclosure: corporate proprietary information including trade secrets, subject to protection pursuant to California Government Code § 6254(k).

Project Summary and Approach

A. Ongoing, Significant Emission Reductions & Consideration of Other Activities

The San Joaquin Valley is ranked the most polluted area relative to the fine particulate matter (PM_{2.5}) National Ambient Air Quality Standards (NAAQS) annual standard and the fifth most polluted area in the United States relative to the 2015 8-hour Ozone standard. Given the fact that the Environmental Protection Agency (EPA) received funding in its 2019 Appropriations Act to reduce air pollution in the nation's areas with the highest levels of ozone or PM_{2.5}, the San Joaquin Valley Air Pollution Control District (District), having State Implementation Plan (SIP) responsibilities for the San Joaquin Valley as a non-attainment area and being in receipt of a continuing air program grant under Sections 103 and 105 of the Federal Clean Air Act, is eligible to apply for funding from the Targeted Air Shed Grant Program.

The District has assembled a project with strong partnership from Daimler Trucks North America (DTNA) to work with six premier fleets that perform vast and diverse goods movement in the Central Valley. PepsiCo, Ruan Transportation (Ruan), Sysco Food Services (Sysco), Estes Express Lines (Estes), Schneider National (Schneider) and Penske Truck Leasing (Penske) will modernize commercial fleet distribution operations in the most impacted air quality regions of the Central Valley by introducing all-electric medium and heavy-duty transportation for commercial delivery services. The project is a crucial linkage in a decade's long strategy to reduce diesel-related air pollution in the San Joaquin Valley. DTNA is poised to bring cutting edge electric vehicle (EV) technology to the heavy-duty market because of the trust and customer loyalty that they have built over the years among area fleet operators, and the premier fleets have the reach to bring the benefits of clean transportation to a large swath of the Central Valley's population. DTNA's support and leadership in this product deployment sends a strong signal to the fleets of the valley that the world's largest truck original equipment manufacturer (OEM) is standing behind commercial fleet electrification. As the market drivers for modern heavy-duty alternative fuel vehicles generally include fuel cost savings and economic benefits, there is an increasing focus on emission reductions, and a dire need to shift our economy away from petroleum fuels to more environmentally friendly and renewable alternative fuels. Dedicated electric trucks would provide significant petroleum reduction benefits for California as they have the potential to completely eliminate heavy-duty diesel fuel use in applications that consume the greatest volume of diesel in the country. Replacing diesel trucks with electric trucks carries the largest emission reduction potential—namely to eliminate 67% of NO_x and 55% of PM_{2.5} emissions from mobile on-road sources in California.¹

All electric truck deployments will feature the all-electric Class 8 eCascadia and the Class 6 eM2. The eM2 electric trucks are designed for excellent, fuel economic performance, with easy maintenance and operations that are ideal for food and beverage, and pick-up and delivery applications. The electric drivetrain is capable of delivering 250 horsepower. The design allows for a burdened load up to 26,000 lbs. GVWR, and each charge of the battery can give operators up to 225 miles of service. The medium-duty design comes with a 4x2 axle configuration with a day cab space of 106". The batteries that come equipped with the Class 6 truck have designs at 210 and 335 kWh capacity. The truck is capable of being charged with a Combined Charging Standard Type 1 (CCS 1 T1). The eCascadia is the first electric truck for heavy-duty distribution transportation. The all-electric Class 8 truck is designed to travel 250 miles between charging. The electric drivetrain is capable of putting out peak 525 horsepower, and it is designed to meet the needs and specifications of transportation of up to 80,000 lbs. GVWR. This model provides a 6 x 4 axle configuration with a 116" day cab. The battery system has two designs at 315 and 485 kWh of usable power, and they also can use the CCS 1 T1 charging systems.

DTNA will supply the six (6) fleets with electric trucks which will be supported outside of the grant scope of work with the necessary electric vehicle supply equipment (i.e. vehicle chargers). DTNA will supply PepsiCo with 22 Class 8 eCascadia trucks, Ruan with 10 Class 8 eCascadia trucks, Sysco with 21 eCascadia trucks, Estes with seven (7) eCascadia trucks and three (3) eM2 trucks, Schneider National with 23 eCascadia trucks and Penske with 10 eCascadia trucks. This clean transportation performed by the deployment of 96 eCascadia and eM2 trucks will replace

¹ Medium and heavy-duty diesel truck on-road emissions as a percentage of all on-road mobile source emissions.

https://www.arb.ca.gov/app/emsinv/2017/emssumcat_query.php?F_YR=2012&F_DIV=3&F_SEASON=A&SP=SIP105ADJ&F_A_REA=CA#7

the same amount of travel that is currently fueled by diesel. The diesel fuel and the associated emissions will be spared from the local air shed through these deployments. Furthermore, the project will give much needed progress to the electrification of delivery services and the goods movement industry generally.

Benefits to the Public: An extremely important factor to note is that the service area of these trucks includes some of the most sensitive non-attainment areas where air quality improvements are needed the most. It is no surprise that heavy-duty diesel trucking operations are, more often than not, found in low-income and minority neighborhoods where levels of diesel exhaust emissions are disproportionately high. A majority of the emissions in the Valley are a result of goods movement which has become the dominant source of transportation-related ozone and PM_{2.5} in the state. Ozone and PM_{2.5} contribute to premature death, cancer risk, respiratory illnesses, and heart disease. The enclosed air basin of the region results in very poor dispersion and exposure to PM_{2.5} and ozone well above the current federal health standards. Annual exposure above the federal PM_{2.5} alone has been estimated by ARB to result in 1,000 excess deaths in the San Joaquin Valley.

The District is comprised of eight counties within the San Joaquin Valley: San Joaquin, Stanislaus, Madera, Fresno, Merced, Tulare, Kings, and the valley portion of Kern with a 2010 census population of 3,980,459. As reported by the Union of Concerned Scientists, residents of the San Joaquin Valley are particularly vulnerable to the effects of air pollution. Rates of asthma, lack of insurance, and childhood poverty are higher in the region than in the state as a whole. Each is an indicator of vulnerability to environmental hazards such as air pollution. Fresno County, the location of the worst air quality in the region, is already home to the highest rate of childhood asthma in the state.

By replacing 96 trucks, this project will reduce exposure to PM_{2.5} directly emitted in these highly vulnerable Environmental Justice communities. The decrease of emissions will incrementally improve the health of the community residents, as many of the San Joaquin Valley's communities are within the 90-100% most impacted counties, according to the California Environmental Protection Agency's CalEnviroScreen 3.0 map—a screening methodology developed to identify California communities affected by various pollution sources. Based on the latest CalEnviroScreen 3.0 model, 20 of the 30 most disadvantaged communities in California are in the San Joaquin Valley. Development and implementation of this program in the San Joaquin Valley will reduce diesel emissions associated with the trucking industry and improve the quality of life for Valley residents.

The project team is aware of transportation demands, regional operations, and fuel needs for delivery and goods movement applications, and their impact on the region. This project is designed to target emission reductions from diesel use in medium and heavy-duty transportation applications through replacement with all-electric technology options. Research conducted by the DTNA team and project partners in executing this project will produce invaluable data that will serve to advance the EV technologies to the most advantageous point to achieve rapid commercialization. DTNA will work with each of the fleets to continue collecting information on the vehicle's performance, energy use, mechanical issues, operational costs, and driver impressions for the duration of the project. Comprehensive field service will provide valuable information to DTNA and the large commercial fleets in order to further refine the product and transportation methods for sustained ongoing emissions reductions in the sector and in the San Joaquin Valley. The fleets intend to use these electric trucks for at least ten years, and longer as the technology allows. Furthermore, DTNA expects that, should the development of the technology be successful, it will be able to achieve sufficient production volumes to drive down costs within a 5-year timeframe and expand the production and deployment of the technology to other operations. While this product will always have an incremental cost above the base-line diesel unit due to the high level of advanced technology on-board the vehicle, DTNA is confident that the combination of progressive policies aimed at advancing the market penetration of zero-emission vehicles, petroleum and electricity price differentials, and other economic and political drivers will continue to stimulate sales of EV trucks.

Table 1: NOx and PM emission reduction [Tons per year (TPY)] benefits by vehicle type per unit

Vehicle Type	Average Annual Mileage	NOx Reductions (TPY)	PM _{2.5} Reductions (TPY)
eM2 Class 6	49,019	0.0709	0.0014
eCascadia Class 8	58,381	0.2285	0.0067

Tactics to Achieve Significant, On-Going Emissions Reductions: The San Joaquin Valley suffers from diesel fuel related air pollution, and it is ranked as one of the Top Five Most Polluted Areas for each of the three nonattainment categories. It was ranked the most impacted on the annual standard PM2.5 nonattainment areas with a design value of 17.8 micrograms per cubic meter. It was ranked third on the 24-hour standard for PM2.5 with a design value of 65 micrograms per cubic meter and it was ranked the fifth for the 8-hour Ozone standard with a design value of 90 parts per billion. The electric drive trucks will provide an immediate and very effective tool to help ease ground level ozone and PM2.5 in nonattainment areas the minute they are deployed. PepsiCo, Ruan, Sysco, Estes, Schneider and Penske recognize the increased efficiency of the electric drive platform, its overall attractiveness for commercial delivery operation, and the value of participating in an early, high-impact demonstration project.

When all six fleets incorporate a total of 96 all-electric trucks into their operations, they, like the other prospective fleets considering EV technologies, will immediately reduce 100% of NOx and carbon monoxide (CO) emissions, which are the precursor emissions that lead to ground level ozone. They will also completely eliminate all direct tailpipe PM2.5 that would otherwise have been emitted from the goods movement and delivery activities. The project team considered the full range of alternative fuel technologies, before deciding to pursue an EV truck deployment project because the electric drivetrain's superior emission reduction benefits. Electric drive is a 100% petroleum displacement strategy that dramatically reduces smog-forming, cancer-causing, and global warming emissions. Those living in low-income, minority or distressed areas are more likely to be paid on an hourly basis and cannot afford to take days off from work due to respiratory illness, asthma attacks, and other sicknesses. Further, they cannot compound this with added medical expenses. Reducing emissions will reduce incidences of respiratory illness, loss of work days and by extension financial hardship. An electric truck has 100% fewer NOx and particulate matter emissions than a diesel truck, 100% fewer SOx emissions, and 100% less petroleum diesel consumption.

The 96 electric trucks will displace over 873,929 gallons of diesel fuel use per year. On an annual basis, the 96 electric trucks will directly facilitate the reduction of NOx and PM2.5 emissions in the region by 21.46 tons per year, and 0.626 tons respectively. More importantly, the proven technical and economic success of these units will generate tremendous market interest which will quickly translate into thousands of tons of emission reductions throughout California.

B. Emissions Inventory & Progress Towards Attainment

The California Air Resources Board (ARB) and San Joaquin Valley Air Pollution Control District (District) have developed a comprehensive, accurate, and current emissions inventory consistent with the requirements set forth in Section 182(a)(1) of the federal Clean Air Act in order to assist in achieving projected emissions for the nonattainment area and key source categories. Emissions inventories are one of the fundamental building blocks in the development of the District's State Implementation Plan (SIP or Plan). ARB and District staff conducted a thorough review of the inventory to ensure that the emission estimates reflect accurate emission reports for point sources, and that estimates for mobile and area-wide sources are based on the most recent models and methodologies. Staff also reviewed the growth profiles for point and area wide source categories and updated them as necessary to ensure that the emission projections are based on data that reflect historical trends, current conditions, and recent economic and demographic forecasts. Analysis of the Emissions Inventory shows that the project is in a nonattainment area for air quality, with residents facing a disproportionate burden of harmful emissions such as NOx (a precursor to ozone) as well as fine particulate matter (PM2.5), a component of diesel emissions known to cause respiratory distress.

The emission inventories for the San Joaquin Valley Air Basin can be found in Appendix B of the publicly available 2018 Plan for the 1997, 2006, and 2012 PM2.5 Standard at <http://www.valleyair.org/pmplans/documents/2018/pm-plan-adopted/2018-Plan-for-the-1997-2006-and-2012-PM2.5-Standards.pdf>. The base year and reference year modeling for this 2018 PM2.5 Plan is 2013, a projected base year based on the initial 2012 inventory data. ARB selected 2012 as the base year to maintain consistency across the various plans being developed in the state. This project will assist by reducing on-road heavy-duty emissions under the mobile sources emission category and help make progress toward attainment of the San Joaquin Valley. The San Joaquin Valley is currently classified by the EPA as extreme nonattainment for ozone and nonattainment for PM2.5. According to CARB's 2019 Estimated Annual Average Emissions for the San Joaquin Valley Air Basin, mobile diesel sources make up 52% NOx, and 16% PM2.5 of the total

anthropogenic emissions in the San Joaquin Valley. The following table shows the major diesel sources in the San Joaquin Valley and the tons of emissions they produce each day:

Table 2: San Joaquin Valley Emission Inventory for Mobile Sources

Source	NO _x (tons/day)	Percent of total NO _x	PM _{2.5} (tons/day)	Percent of total PM _{2.5}
<i>Total On-Road Motor Vehicles</i>	<i>99.7</i>	<i>58%</i>	<i>3.4</i>	<i>40%</i>
Light & Medium Duty	4.4	3%	1.7	20%
Heavy Duty	95.3	55%	1.7	20%
<i>Total Off-Road and Other Mobile Sources</i>	<i>72.9</i>	<i>42%</i>	<i>5.2</i>	<i>60%</i>
Total Emissions from Mobile Sources	172.6		8.8	

Source: CARB 2019 Estimated Annual Average Emissions

A majority of the emissions in the San Joaquin Valley are a result of goods movement, which has become the dominant source of transportation-related ozone and PM_{2.5} in the state. Ozone and PM_{2.5} contribute to premature death, cancer risk, respiratory illnesses, and heart disease. The enclosed air basin of the region results in very poor dispersion and exposure to PM_{2.5} and ozone well above the current federal health standards. Annual exposure above the federal PM_{2.5} level alone has been estimated by ARB to result in 1,000 excess deaths in the San Joaquin Valley. According to the 2003 California Health Interview Survey conducted by University of California Los Angeles (UCLA), six of the eight counties in the San Joaquin Valley have a higher average of children under 18 with asthma and seven of the eight counties have a higher rate of children having asthma attacks compared to the state average.

By replacing approximately 96 trucks that will be domiciled in San Joaquin, Stanislaus, Fresno and Tulare Counties, this project will reduce exposure to directly emitted PM_{2.5} in these highly vulnerable environmental justice communities with an anticipated annual health benefit of \$420,000 in the form of reduced health care costs, missed days of school and work, and reduced mortality from air pollution, as calculated by the Diesel Emission Quantifier.

Emission control technology has drastically improved over the last decade, and even over the past five years. NO_x emissions for heavy-duty diesel engines were capped at 5.0 and 4.0 g/bhp-hr in 1994 and 1998, respectively. The 2010 NO_x emission standard only allows for 0.2 g/bhp-hr. In 2007, permissible PM_{2.5} emissions were capped at .01 g/bhp-hr, only 10 percent of the .1 g/bhp-hr limit before. This means that a 2019 model year engine replacing a 1998 engine could easily garner a NO_x and PM reduction of 95 percent and 90 percent, respectively. It is important to note that these were the emissions allowed for new, perfectly functioning engines, and that it is very likely that their emission rates have increased over the life of these engines. Utilizing zero-emission heavy-duty electric Trucks delivering in the San Joaquin Air Basin, emissions from NO_x and PM_{2.5} will be reduced 100%. In addition to the immediate emission reductions and community engagement effects of this deployment, this project is poised to act as a catalyst for the accelerated penetration of zero emission technology throughout the San Joaquin Air Basin. The proving of electric truck viability as part of this project will have a “domino effect,” leading to more zero emission deployments and multiplying the progress toward air quality attainment goals.

C. Innovative Emission Reductions

The advanced heavy-duty transportation technologies DTNA will supply to PepsiCo, Ruan, Sysco, Estes, Schneider and Penske in California’s Central Valley will provide a heavy-duty vehicle platform that improves flexibility, operational performance, and fuel cost savings. Further, a large-scale deployment in these high-profile regional fleets will allow for a continued aggressive market transformation away from petroleum-based transportation fuels to zero-emission technologies. This project will significantly drive the development of new state-of-the-art heavy-duty truck technologies and provide a platform upon which the market can reduce diesel consumption and the resulting NO_x, PM and carbon emissions from transportation activities. The vehicles being replaced as a part of this project are all diesel. The existing class 6 trucks emit 0.213 tons NO_x per year, 0.021 tons hydrocarbons (HC) per year, and 0.04 tons PM_{2.5} per year.

The existing class 8 trucks emit 21.25 tons NOx per year, 1.096 tons HC per year, and 0.622 tons PM2.5 per year. All of these tailpipe emissions will be immediately and completely eliminated by the adoption of battery electric technology.

In addition to the criteria emissions reductions outlined above, the project also reduces greenhouse gas (GHG) emissions by way of eliminating the need for diesel in delivery services, leaving only the need for electricity in transportation. Looking at the project in the long-run and understanding that technology will continue to advance in conjunction with state support of alternatives, there is also the potential for electricity to become completely renewable. California's Renewable Portfolio Standard (RPS) is aggressively positioned, and in the Pacific Gas & Electric territory where these vehicles operate has already achieved 39% renewables as of 2018, and is on track to meet the state's new 60% by 2030 RPS set forth by SB 100. This rapid progress showcases past and on-going investments in electrified transportation, and the potential for further life-cycle emission improvements to significantly affect the GHG emission reduction potential of electric truck operations such as this project. Based on the known energy efficiencies of DTNA's electric drive train and the existing efficiencies of the baseline diesel trucks, (which average 6-7 miles per gallon), the following is an estimate of the emissions levels from the existing technologies compared to the new EV technology options:

Table 3: Emission Reduction Benefits By Vehicle Type

Model	Class	Annual Diesel-Equivalent Fuel Displaced (gallons)	Annual CO2 emissions from existing technology (tons)	Annual CO2 emissions from new technology (tons)
eM2	Class 6	18,729	210.7	0
eCascadia	Class 8	855,200	10,596.6	0

The development of the electric drivetrain in these medium and heavy-duty applications is the culmination of years of development of the technology, but it also stems from years of DTNA earning their place as the preeminent OEM in the truck market. This EV development is not only from a concerted effort of research and development (R&D) on the part of DTNA, but is another layer built on the success of knowing and growing with the market to create better end-to-end services. DTNA has created some of the most groundbreaking alternative fuel technologies in the market today and has engineered them to fit the specific needs of goods movement businesses while accommodating for the nuances of the new fuels being applied to power the operation. The electric drivetrain is something that DTNA has helped to develop and perfect through their deployment of the hybrid diesel and natural gas models. The Class 8 eCascadia and Class 6 eM2 electric vehicles described above are a reflection of the efforts and technological capabilities of DTNA reaching a tipping point that will revolutionize transportation toward electrification. The ability of this technology to move fully burdened loads on heavy-duty vehicles that can achieve distances of over 200 miles using electricity on one single charge is an astounding feat. And now that it is on the brink of commercialization, it could not be in the hands of a better project team to take this technology to the goods movement market.

The most influential indicator of success in this project is the DTNA user-base and the DTNA reputation. In addition to making reliable trucks that travel from origin to destination, DTNA has invested decades of resources into making the user experience the most informative for its customers' businesses—because goods movement is much more than a truck getting from point A to point B. Goods movement fleets know this, and they continuously choose to purchase DTNA trucks. The data collection and end-to-end operator experience aspects of this project are germane to DTNA's existing efforts to share information to enable the enhancement of EV operations and experience. Data will start as soon as the vehicles are put into service, including a significant amount of data that will be shared on a real-time basis and supported by DTNA's best-in-class technicians to shepherd operators through any challenges on-demand. DTNA is well-versed in software development and providing on-the-fly updates to on-board systems, which are procedures that DTNA incorporates into its full current fleet offering. The data collected and modifications made through this process will best inform EV operation as well as be an important learning experience for the entire industry as the market moves to electrification. This will incite market viability of heavy-duty EVs across the entire industry. The learning process will be iterative and will require constant feedback and constant response from DTNA with near immediate turn-around times. As with any new technology, both the known and unknown issues will be managed to

the fullest extent, and DTNA has put as many checks in place as possible to mitigate the risks inherent in deploying a new, state-of-the-art technology. This project will find the unknowns in order to gain driver acceptance and market acceptance. DTNA has the best technicians on the job to assist with any bumps in the road, and they are prepared to fix problems immediately for the seamless operation that is required of the market.

D. Roles and Responsibilities

The District, as Applicant and administrative lead, has assembled an ideal team for effective implementation of the electric vehicle project, including DTNA as the OEM and technical lead and six leading fleets as the implementation partners. The phases of the project will include the following:

- Processing of the trucks selected for funding including, but not limited to, data entry into the database, pre-inspection of the trucks, and information verification.
- Issuing agreements between the District and participant as to the terms of the program and role of parties involved.
- Processing the Claims-for-Payment and issuing reimbursement to the participant.
- Submitting reimbursement requests to EPA.
- Tracking annual reports to ensure program success and accuracy of the reductions reported. Meeting all Federal reporting requirements

The District has selected DTNA as the principal project partner and technology provider for this project. The District selected DTNA as a project partner because of its: 1) expertise and experience in manufacturing and deploying of electric vehicles technology; 2) significant cost share to the project; and 3) network of fleet organization clients that will play an integral role in the development of electric vehicle technology. These fleets include PepsiCo, Ruan, Sysco, Estes, Schneider and Penske who have committed to operating 22, 10, 21, 10, 23, and 10 all-electric trucks, respectively, as a part of this project. Along with DTNA, Ruan, Estes and Schneider have submitted Leveraged Funds Cost Share Commitment Letters as attachments to this application.

As the principal project partner, DTNA will be responsible for providing the technical and project management assistance for this project. As one of the largest original equipment manufacturers of heavy-duty trucks in the world, DTNA has extensive expertise in large-scale vehicle deployments. This expertise will play a pivotal role in the successful implementation of this project and greatly contribute to the District's efforts in improving the air quality in California's central valley. DTNA will also provide a financial commitment to the project by providing \$1,786,524 in match funding. PepsiCo, Ruan, Sysco, Estes, Schneider, and Penske will also play critical roles as committed fleet project partners in effectively executing this project. Each of these fleets are among the largest in their respective industries and, as such, are well positioned to have the largest impact in improving the central valley's air quality by transitioning their fleet to zero-emission technologies. These fleets will coordinate with DTNA on final specifications, coordinate deliveries, participate in training, deploy supportive EVSE infrastructure and provide data for ongoing grant reporting. These fleets have also demonstrated a financial commitment to the project by providing match funding of \$1,442,220.

Section 2 - Community Benefits, Engagement and Partnerships

A. Community Benefits

The zero-emission truck replacement program will result in a decrease in the amount of diesel emissions from trucks used in the day-to-day operation of project partners, including trucking and logistics companies, beverage distribution and package delivery fleets in the San Joaquin Valley. Electric trucks will provide a significant health benefit to communities within the project area that suffer disproportionate pollution and economic burdens compared to other parts of the region. Communities near this project will see immediate benefits from a reduction in diesel emissions, increased community engagement by area businesses, and the long-term benefits of increased addition of zero emission technology throughout the Central Valley region. In addition, the long-term community engagement efforts

conducted as part of this project provide an outlet to hear questions, concerns, and ideas from the public that have the potential to further improve this project and ensure it is meeting the needs of its neighbors.

The District places a high priority on focusing incentives in disadvantaged communities throughout the San Joaquin Valley. With the ongoing implementation of Assembly Bill 617 (AB 617), the District will pursue additional incentive and enforcement activities in the most heavily burdened communities throughout the District. Given that 20 of the 30 most disadvantaged communities in California are in the San Joaquin Valley, this project is expected to bring additional clean air resources and a strategy to uplift the many impacted Valley communities.

According to EPA's EJSCREEN Tool, the location of the PepsiCo fleet at 2945 S East Ave, Fresno, CA 93725 falls within the 77th percentile for low income population, and the 85th percentile for minorities. In terms of environmental indicators, PM2.5 pollution is in the 91st percentile, Ozone is in the 90th percentile, NATA diesel PM is in the 78th percentile, and NATA cancer risk is in the 87th percentile. CalEnviroScreen 3.0 ranks this location in the 93rd percentile for population characteristics, the 100th percentile for pollution burden, and the 95-100th percentile for overall burden.

The location of the Ruan fleet at 754 S Blackstone St, Tulare, CA 93274 falls within the 85th percentile for low income population, and the 97th percentile for minorities. In terms of environmental indicators, PM2.5 pollution is in the 99th percentile, ozone is in the 98th percentile, NATA diesel PM is in the 59th percentile, and NATA cancer risk is in the 97th percentile. CalEnviroScreen 3.0 ranks this location in the 93rd percentile for population characteristics, and the 90-95th percentile for overall burden.

Sysco's fleet located at 136 S Mariposa Rd, Modesto, CA 95354 falls within the 93rd percentile for low income population, and the 75th percentile for minorities. In terms of environmental indicators, PM2.5 pollution is in the 86th percentile, ozone is in the 97th percentile, NATA diesel PM is in the 41st percentile, and NATA cancer risk is in the 63rd percentile. CalEnviroScreen 3.0 ranks this location in the 83rd percentile for population characteristics, the 93rd percentile for pollution burden, and the 90-95th percentile for overall burden.

Schneider's fleet located at 6600 S Austin Rd, Stockton, CA 95215 falls within the 89th percentile for low income population, and the 84th percentile for minorities. In terms of environmental indicators, PM2.5 pollution is in the 95th percentile, ozone is in the 92nd percentile, NATA diesel PM is in the 43rd percentile, and NATA cancer risk is in the 63rd percentile. CalEnviroScreen 3.0 ranks this location in the 74th percentile for population characteristics, the 98th percentile for pollution burden, and the 95-100th percentile for overall burden.

Penske's fleet located at 3663 Petersen Rd, Stockton, CA 95215 falls within the 82nd percentile for low income population, and the 69th percentile for minorities. In terms of environmental indicators, PM2.5 pollution is in the 96th percentile, ozone is in the 90th percentile, NATA diesel PM is in the 38th percentile, and NATA cancer risk is in the 65th percentile. CalEnviroScreen 3.0 ranks this location in the 81st percentile for population characteristics, the 96th percentile for pollution burden, and the 95-100th percentile for overall burden.

Estes' fleet located at 7611 S. Airport Way, Stockton, 95206 falls within the 89th percentile for low income population, and the 84th percentile for minorities. Stockton scores similarly in CalEnviroScreen, scoring in the 90-95th percentile range for overall CalEnviroScreen 3.0 percentile score, and up to 100 for pollution burden percentile.

B. Community Engagement and Partnerships

The District and DTNA will continue to utilize their community partners to ensure that the program achieves the greatest emission benefits to the affected communities. The District has solicited input from Valley communities, organizations, businesses, and other interested stakeholders to determine their support for this diesel emission-reduction programs. Additionally, the District will continue to conduct Valley-wide workshops, community meetings and targeted outreach campaigns. In addition to the partners that will directly assist in implementation of the program, the District has also engaged with the Central California Asthma Collaborative (CCAC) to discuss the issues of diesel pollution from on-road trucks and to receive feedback on ways to make the District's grant program efficient and effective in reducing these pollutants. The CCAC is a project partner for the CEC-funded Central Valley Outreach Project, which promotes the deployment of alternative fuel vehicles throughout the San Joaquin Valley Air Pollution Control district. As such, they are well-positioned to leverage the deployment of these vehicles as an encouragement to other fleets in the region.

During and after the project period, DTNA will incorporate news regarding the deployment of the electric Cascadia and M2 trucks into its regular corporate sustainability outreach including newsletters, social media and other digital collateral. Crucial community engagement will be solicited through project partner fleets' existing area partnerships, which include area food banks, Chambers of Commerce, and other community non-profits. This is a crucial linkage to area grassroots, faith-based, aid and other types of community organizations. This network has been developed over the course of decades and is especially well-suited to support this project as a source of continual feedback.

Section 3- Project Sustainability

SJVAPCD has successfully partnered with both state and federal agencies and exemplified its ability to reduce emissions through its existing and highly successful truck replacement program. In 2018, over 180 old, high-polluting class 5-8 diesel trucks were replaced for a total of over \$6.8 million in incentive dollars. The over 180 projects resulted in 450 tons of emissions being reduced over the lifetime of the projects. To date, SJVAPCD has contracted more than 5,000 trucks for over \$235 million, and the District anticipates it will continue to be heavily involved in efforts, with or without grant funding, to reduce emissions after EPA funding for this project has ended.

DTNA sees this new project as the logical integration of the multiple advanced technology platforms it has successfully delivered to the market in the last five years. The new electric technologies are an absolutely ideal fit with the formal initiative within the worldwide Daimler organization called Shaping Future Transportation: Clean Drive Technologies. The focus of this initiative is to develop "clean, efficient drive systems and alternative fuels on the way to developing the emission-free commercial vehicle and sustainable mobility." This project is not only a direct result of this important company-wide initiative but will be a tremendously important element in the company's long-term efforts to achieve the emission-free commercial vehicle and sustainable mobility goals of the program. The project team is committed to receiving feedback from the local communities, which will allow the District to implement new strategies, activities, and approaches that are most beneficial to the region. Technology is continually being integrated into the trucking industry which is proving to be a significant factor in reducing heavy-duty truck related emissions. It provides delivery and goods movement partner companies the tools the need for their own sustainability initiatives.

PepsiCo, Ruan, Sysco, Estes, Schneider and Penske will operate the zero-emission trucks for a period of at least six years. The trucks will operate more than 300 days each year, and the emission benefits will extend beyond the project period. Following the successful completion of this project the partner fleets will utilize the vehicles in that duty cycle for as long as they remain a reliable option before shortening their duty cycle and eventually selling them into a secondary market after 12 to 15 years. Additionally, yearly annual reports will ensure the emission reductions are realized and kept in the San Joaquin Valley.

Daimler's petroleum-free zero-emission heavy-duty trucks will immediately provide NOx, PM2.5 and GHG emission reductions, and clearly this project will help the EPA exceed its alternative fuel use, petroleum displacement and criteria pollutant reduction goals. The benefits of Daimler's solutions substantially exceed statewide and regional goals, including the mobile source measures SJVAPCD's 2018 Plan for the 1997, 2006, and 2012 PM2.5 Standards, and will therefore provide the greatest improvements for environmental sustainability. The project will lead to not only increased sales of heavy-duty EV trucks but also a greater, overall commercial viability on the EV market with more systemic EV implementation among competitors.

The growing deployment of these vehicles will also build a strong foundation for future projects through the installation of charging infrastructure and workforce development. The need for skilled technicians and drivers will increase the market demand for programs such as the ATRE Community College Alternative Fuel and Vehicle Technology Training Enhancement Program offered by Bakersfield College and other Career Technical Education (CTE) programs in the Central Valley that are focused on heavy-duty electric technologies. A prepared workforce combined with Daimler's tried-and-true method of developing new products will allow for this project to surpass its objectives and build upon them in the future. Communities throughout the San Joaquin Air Basin will greatly benefit for years to come from this prolonged strategy to deploy heavy-duty zero-emission vehicles.

Section 4 - Environmental Results – Outcomes, Outputs, and Performance Measures

A. Expected Project Outputs and Outcomes

With the objective of creating the maximum emission reduction, the project will prioritize the electrification of existing diesel class 6 and 8 local and regional freight trucks operating as part of six unique partner fleets in the San Joaquin Valley. Electric delivery and transport trucks are the least polluting alternative to conventional diesel trucks, eliminating tailpipe emissions of GHGs and criteria pollutants by 100%. The target deployment is a total of 96 trucks, split between 93 eCascadias and 3 eM2s. Outcomes for these replacements will be significant emissions reductions. Based on the split between vehicle types, the expected annual & lifetime emission reductions for ozone and PM2.5 precursors due to this fleet electrification project are as follows:

Table 4: Anticipated Outputs and Outcomes

Output	Outcome
Replace 3 diesel fueled local delivery trucks with battery-electric zero tailpipe emission eM2s	Annual: 0.213 tons NOx; 0.004 tons PM2.5; 210.7 tons CO2e; 0.021 tons HC Lifetime Emission Reductions (Over 10 years): 2.12 tons NOx; 0.041 tons PM2.5; 2,107 tons CO2e; 0.211 tons HC Diesel Fuel Reduced: 18,729 gallons annually and 187,290 gallons over vehicle lifetime
Replace 93 diesel fueled local delivery trucks with battery-electric zero tailpipe emission eCascadias	Annual: 21.25 tons NOx; 0.622 tons PM2.5; 9,621 tons CO2e; 1.096 tons HC Lifetime Emission Reductions (Over 10 years): 212.5 tons NOx; 6.22 tons PM2.5; 96,210 tons CO2e; 10.96 tons HC Diesel Fuel Reduced: 855,200 gallons annually and 8,552,000 gallons over vehicle lifetime

Because the baseline fuel is ultra-low sulfur, reductions in SO₂ and ammonia are negligible. The total miles of travel electrified over the lifetime (10 years) of the 96 trucks is estimated at 61,765,260 miles. The total diesel gallon equivalent of fuel saved will be more than 8.7 million gallons. All calculations were completed using the Diesel Emissions Quantifier (DEQ) Tool. Please see attached Emissions Calculation for the quantification methodology used to calculate the above emissions reductions. In addition to these direct air quality benefits, the project will produce a number of outputs and consequent outcomes that will benefit the community more indirectly:

- **Progress towards environmental justice goals.** As discussed in Section B .iii. this project will serve a community with significant environmental justice burdens including some of the highest pollution scores for ozone and PM2.5 in the state and country, as well as large minority and economically disadvantaged residents. By reducing emissions through vehicle electrification, this project will be a significant step to lowering the area's percentile score. The outcome of this will be a step towards compliance with SIP goals and NAAQS standards.
- **Documented commitment to identify and address air quality issues.** Through the support of municipal and grassroots organizations, the project partners will document a solid commitment to engaging with the community to better understand local concerns of air and environmental quality. The outcome of this commitment will be increased community engagement, in-person community meetings, and educational materials about this first-of-its kind deployment in the Central Valley.
- **Publicly available community engagement plan.** DTNA will create an informational flyer detailing the deployment of the eM2 and eCascadia trucks, as well as contact information for project partners who can address any questions, concerns, or further community partnership inquiries.
- **Dissemination of project/technology information.** DTNA will provide collateral and information on the eM2 and eCascadia deployment to existing community partners. These community partners include faith-based, grassroots, non-profit, and municipal partners who may already have exposure to the six project partner fleets.

B. Performance Measures

- **Replace 93 diesel fueled local delivery trucks with battery-electric zero tailpipe emission eCascadias.** DTNA EMG will lead this task and track expenditures, project timeline, and solicit any contractors/vendors.
- **Replace 3 diesel fueled local delivery trucks with battery-electric zero tailpipe emission eM2s.**

- **Install electric vehicle supply equipment and upgrade facilities' electrical service** as needed to support new electric trucks.
- **Progress towards environmental justice goals.** DTNA EMG will lead this task and track expenditures, project timeline, and solicit any contractors/vendors.
- **Documented commitment to identify and address air quality issues.** DTNA EMG will lead this effort, supported by the existing networks of the District. By leveraging existing relationships with local municipalities and a variety of other stakeholders, the project partners will be able to effectively carry out community outreach at a low cost.
- **Publicly available community engagement plan.** DTNA EMG will provide information on the electric truck deployment and ways community members can engage with DTNA EMG to ask questions, air concerns, etc. Performance will be tracked based on the number of organizations engaged with, number of press releases; and number of questions/comments/concerns received.
- **Dissemination of project/technology information.** DTNA EMG will lead this task. Performance will be tracked based on number of organizations that receive outreach materials; number of social media and web posts and press releases.

The predicted measurable short- and long-term results of this project are described in the Expected Outputs/Outcomes section above. The predicted results will be tracked against the actual results by lead project partner DTNA EMG. Should the predicted targets not be met, DTNA EMG will include these findings and details on the solution moving forward to the EPA via quarterly reports. On a quarterly basis, the District will report to EPA the project status, including milestones such as number of trucks delivered and EVSE installed, any challenges and delays encountered, updated timeline (if necessary), funds expended, and other pertinent information based on the timeline listed in the Timeline Schedule and Tasks.

C. Performance Plan

Performance Plan: The District, as the project administrator, will monitor DTNA, PepsiCo, Ruan, Sysco, Estes, Schneider, and Penske's adherence to the project schedule. The District has deep experience working both with OEMs and fleet operators on projects of similar scope.

Table 5: Output Tracking and Measurement Plan

Output	Tracking Plan	Measuring Plan
Replace diesel trucks with eCascadias	Quarterly updates from DTNA EMG and fleet operators	Subtract actual progress from schedule to determine schedule variance.
Replace diesel trucks with eM2s		

Table 6: Outcome Tracking and Measurement Plan

Outcome	Tracking Plan	Measuring Plan
Short Term Criteria Emission Reductions	Quarterly mileage and KWH information from DTNA EMG and fleet operators.	Using EPA DEQ and provided mileage/KWH information, calculate emission reduction impact.
Long Term Criteria Emission Reductions		
Lifetime Emission Reductions		

D. Timeline and Milestones

The program will begin upon EPA approval of the District's "Daimler EMG Zero Emission Heavy-Duty Electric Trucks Delivering in San Joaquin Air Basin" October 1, 2020 and continue up to 5 years.

Date	Activity
Q3 2020 – Q4 2020	Grant Agreement and Contracts Execution
Q2 2020 – Q4 2023	Outreach Activities
Q4 2020 – Q1-2023	Order, Deploy, and Operate Electric Trucks
Q3 2020 – Q2 2025	Monitoring and Reporting - submit final reporting to EPA

Section 5 - Programmatic Capability and Past Performance

A. Management, Completion and Reporting Requirements

The District has worked with EPA on multiple EPA-funded assistance agreements within the last three years. The following table lists three such agreements that are similar in size, scope and relevance to the proposed application. Each agreement project is in progress or has been recently implemented successfully. The completed projects' milestones have been accomplished in accordance with the agreements. In all cases, the District has met all reporting requirements to date and on time, as specified in the applicable agreements, including all Quarterly Performance Reports documenting accomplishments consistent with outputs and outcomes designated in the program work plan. As all three assistance agreements listed are currently ongoing or have been recently completed, no final technical reports have yet been submitted.

The District has reported on time to the State of California annually for state funding sources and both quarterly and annually for federal funding sources. At the close of all state and federal grants final reports have been submitted in a prompt manner by the agreement deadlines.

Table 7: District Experience with EPA Funding

EPA-Funded Assistance Agreements		
Assistance Agreement	Funding Amount	Project Description/Progress/Status
Diesel Emission Reduction Act 2015 DE-0-99T37301 - CFDA # 66.039 Awarded: 09/28/2015 Project Period: 10/01/2015-12/31/2019	\$1,040,268.00	<u>Description:</u> Replace 75 ag tractors with new T4 tractors <u>Progress:</u> Currently obligating funds and paying reimbursement requests for new tractors purchased <u>Ongoing project.</u> No-Cost extension was requested & granted. Reporting is current & provided to EPA.
Targeted Air Shed – Wood Burning Appliance Change-Out EM-99T54901-0 - CFDA #66.202 Awarded: 04/04/2017 Project Period: 03/01/2017 – 02/28/2022	\$ 2,477,250.00	<u>Description:</u> Change-out of open-hearth fireplaces, old wood burning appliances, and old pellet burning appliances <u>Progress:</u> Currently obligating funds and paying reimbursement requests for new burning appliances purchased <u>Ongoing project.</u> Reporting is current & provided to EPA.
Targeted Air Shed – Heavy-Duty Truck Replacement EM-99T55001-0 - CFDA # 66.202 Awarded: 04/04/2017 Project Period: 03/01/2017 – 02/28/2022	\$2,477,250.00	<u>Description:</u> Replacement of Class 5 - 8 on-road trucks <u>Progress:</u> Currently obligating funds and paying reimbursement requests for new trucks purchased <u>Ongoing project.</u> Reporting is current & provided to EPA.

The EPA Assistance Agreements listed in the table above are but a few of the grants that the District has successfully developed, implemented, and administered through state and local funding agencies, as well as other federal funding agencies. The District operates one of the largest and most well-respected voluntary incentive programs in the state. Through strong advocacy at the state and federal levels, the District has appropriated more than \$350,000,000 million in incentive funding in the 2018-2019 District Budget. In its eighteen year history of the grants program, the District has awarded over \$1 billion dollars in grants along with an additional \$1 billion from recipients in the form of cost-share, reduced over 146,000 tons of emissions (NO_x, PM, and VOC), and has a historical lifetime cost-effectiveness of approximately \$7,420 per ton of pollutant reduced. During this time, the District has required and enforced contract usage to ensure that predicted reductions were achieved.

C. Staff Expertise

District staff assigned to the development, implementation, and administration of this or any grant program represent many years of experience in the environmental sciences and/or grant-administration fields. District staff prides themselves in excellent customer service and have made a point, over the years, to create and maintain strong working relationships with grant recipients, equipment dealers, industry groups and state and federal agencies. These relationships have provided valuable sources for networking, information requests, and support for the incentive programs provided by the District. The District provides ongoing opportunities for staff to participate in state sponsored

continuing education classes in the areas of air quality management, ensuring the staff is knowledgeable in the most current technology and emission reduction strategies. Based on a history of operating highly successful and efficient grants programs, the District is well-positioned to administer the proposed program and requested funds. The District has proactively increased staff for grant programs, as well as for finance, information technology services, and compliance to be able to handle any anticipated increased workload. The District Governing Board has committed to adding staffing resources to the development, implementation and ongoing administration of grant programs when necessary to accommodate increased program capacity.

Samir Sheikh is the Executive Director and Air Pollution Control Officer for the San Joaquin Valley Air Pollution Control District. Mr. Sheikh has over 20 years of experience in directing, developing, applying and administering air quality improvement programs. Mr. Sheikh has worked with a wide range of stakeholders to form a variety of successful coalitions to bring significant resources to the Valley for incentive-based emission reduction programs. Through these efforts, the San Joaquin Valley now has access to over \$300 million per year in local, state and federal funds for clean air projects that expedite air quality improvement. To date, Mr. Sheikh has overseen the expenditure of over \$1 billion in public/private investment in the San Joaquin Valley's clean air efforts through voluntary programs. With a staff of over 300 air quality professionals, Mr. Sheikh has made employees' welfare and wellbeing a top priority and has instituted a number of programs to motivate and empower employees, while focusing on providing excellent customer service to the general public and the regulated community.

Todd DeYoung has over 20 years of experience administering federal, state and local incentive programs at the SJVAPCD and recently became the Director of the Strategies and Incentives department in 2019. Mr. DeYoung has been involved in all aspects of incentive program administration, including grant writing, program development, processing, contract negotiation, implementation, and auditing. Additionally, Mr. DeYoung serves on several statewide incentive program related committees including the California Air Resources Board Incentive Program Implementation Committee and recently served as the Chair of the California Air Pollution Control Officers Association Mobile Sources and Incentives Subcommittee. Mr. DeYoung holds a Bachelor of Science degree in environmental geography from California State University, Fresno.

Brian Dodds has over 12 years of experience administering federal, state and local incentive programs at the SJVAPCD and has been a Program Manager of the Grants and Incentives Department since 2018. Mr. Dodds has been involved in all aspects of incentive program administration, including grant writing, program development, processing, contract negotiation, implementation, and auditing. Additionally, Mr. Dodds has represented the SJVAPCD on the California Air Pollution Control Officers Association Mobile Sources and Incentives Subcommittee. Mr. Dodds holds a Bachelor of Science degree in Biology from California State University, Fresno.

Section 6 - Leveraged Funding

Leveraging: The District has secured substantial voluntary cost share for the project. District requests \$20,000,000 in grant funds for the proposed project, which is estimated to cost \$38,873,744. The total co-funding from CARB for leveraged vehicle grants is estimated at \$15,645,000. An additional \$3,228,744 will be cost share committed by DTNA and their fleet partners. In addition, project partners will leverage existing community outreach activities in support of this project though those hours will not be tracked separately. For reference, the budget show in Table 10 lists the breakdown and federal funding and cost-share for each cost category.

Table 8: Leveraged Funds and Contributions

CARB HVIP	\$15,645,000
DTNA and Fleet Partners	\$ 3,228,744
TOTAL Co-funding for the Project	\$18,873,744

It is estimated that each eCascadia will cost \$398,708 of which \$200,000 will be paid with federal funds. It is estimated that each eM2 will costs \$197,300 of which \$66,000 will be paid with federal funds. The total project cost is estimated to be \$38,873,744.

Detailed Budget Narrative: The majority of EPA grant funds will be used directly towards funding the replacement of diesel- fueled trucks with battery electric trucks. Only 6.01 percent or \$1,202,000 of the requested fund will be allocated for administrative costs and the remaining grant of \$18,798,000, along with \$18,873,744 of cost share from the voluntary contribution project partner will be allocated under contracts for the battery electric trucks. Contractual funding makes up 94 percent of the estimated project cost.

Table 9: Detailed Budget

	96 (3 eM2s + 93 eCascadias)
Cost / Truck (eM2)	\$ 197,300
Cost / Truck (eCascadia)	\$ 398,708
Total Funds Required For trucks	\$37,671,744
EPA Funds Requested Towards Trucks Cost	\$18,798,000
EPA Funds towards SJVACPD Admin Fee	\$ 1,202,000
TOTAL Funds Requested from EPA	\$20,000,000
TOTAL Co-funding for the Project	\$18,873,744
Co-funding from CARB - HVIP (eM2)*	\$ 300,000
Co-funding from CARB - HVIP (eCascadia)*	\$15,345,000
DTNA and Fleet Partner Cost Share	\$ 3,228,744
TOTAL Cost of the Project	\$38,873,744

The requested amount from EPA for personnel costs plus fringe benefits is \$686,543 and indirect costs of \$515,457 for a total of \$1,202,000. The equipment to be purchased consists of 96 new heavy-duty electric trucks at an average cost of \$392,414 per truck. The amount requested for equipment from EPA would cover 50% of the new truck cost totaling \$37,671,744 for 96 heavy-duty electric trucks. Leveraged funding sources for the remaining \$18,873,744 will include contributions from DTNA which will be partially offset with CARB and customer contributions. The District's estimated total project cost is \$38,871,744 of which \$20,000,000 is being requested from EPA.

The District's internal grant administration policies and procedures are designed to ensure the District recovers all allowable expenditures of federal EPA grant awards while meeting applicable federal requirements. All costs are incurred and disbursed prior to billing EPA and consistent billing methodologies are used throughout the year. Duties related to the financial management of these awards are segregated and grant processing involves multiple reviews. Management reviews and authorizes all reimbursement requests.

Section 7 - Budget

A. Procedures for Efficient Expenditures of Awarded Funding Procedures for Efficient Expenditures: The District staff has extensive experience managing both incentive and demonstration projects. Our highly technical staff has the resources and expertise necessary to successfully implement the proposed project, including drafting a contract with appropriate terms and conditions, detailed task descriptions, and payment schedules tied to milestones to ensure all required tasks have been satisfied before any funds are paid out. In addition, the District will closely monitor the progress of the project via telephone calls, e-mails, meetings and site visits as well as quarterly progress reports provided by the contractors. Invoices are generally processed and paid out within 30 days of the receipt by the District to ensure projects are not negatively affected by delayed reimbursements.

B. Reasonableness of Budget and Budget Detail

Table 10: Budget by Cost Category

The SJVUAPCD FY19 Air Shed Daimler EMG Zero Emission Heavy Duty Truck						
			EPA Funding	CARB HVIP Cost-Share	Truck Owner Cost-Share	Total Project Cost
PERSONNEL	Rate	Hours				
(1) Air Quality Assistant	\$ 23.59	375	\$ 8,846			\$8,846
(1) Staff Technician II	36.63	563	\$ 20,623			\$20,623
(1) Air Quality Specialist II	40.41	3846	\$ 155,417			\$155,417
(1) Senior Air Quality Specialist	44.54	1543	\$ 68,725			\$68,725
(1) Supervising Air Quality Specialist	50.34	1395	\$ 70,224			\$70,224
(1) Senior AQ Instrument Technician	40.41	153	\$ 6,183			\$6,183
(1) Accounting Assistant II	23.60	423	\$ 9,983			\$9,983
(1) Accounting Technician II	30.12	529	\$ 15,933			\$15,933
(1) Accountant II	40.41	264	\$ 10,668			\$10,668
(1) Senior Accountant	44.54	528	\$ 23,517			\$23,517
(1) Supervising Accountant	50.34	160	\$ 8,054			\$8,054
(1) Air Quality Field Assistant	27.99	422	\$ 11,812			\$11,812
(1) Air Quality Inspector II	40.41	162	\$ 6,546			\$6,546
(1) Programmer/Analyst II	46.78	25	\$ 1,170			\$1,170
(1) Senior Programmer Analyst	51.58	25	\$ 1,289			\$1,289
TOTAL PERSONNEL			\$ 418,990			\$418,990
FRINGE BENEFITS						
(1) Air Quality Assistant	\$ 18.46	375	\$ 6,923			\$6,923
(1) Staff Technician II	23.84	563	\$ 13,422			\$13,422
(1) Air Quality Specialist II	25.56	3846	\$ 98,304			\$98,304
(1) Senior Air Quality Specialist	27.44	1543	\$ 42,340			\$42,340
(1) Supervising Air Quality Specialist	31.10	1395	\$ 43,385			\$43,385
(1) Senior AQ Instrument Technician	26.22	153	\$ 4,012			\$4,012
(1) Accounting Assistant II	17.92	423	\$ 7,580			\$7,580
(1) Accounting Technician II	20.89	529	\$ 11,051			\$11,051
(1) Accountant II	25.56	264	\$ 6,748			\$6,748
(1) Senior Accountant	27.44	528	\$ 14,488			\$14,488
(1) Supervising Accountant	31.10	160	\$ 4,976			\$4,976
(1) Air Quality Field Assistant	20.38	422	\$ 8,600			\$8,600
(1) Air Quality Inspector II	26.22	162	\$ 4,248			\$4,248
(1) Programmer/Analyst II	28.46	25	\$ 711			\$711
(1) Senior Programmer Analyst	30.63	25	\$ 765			\$765
TOTAL FRINGE BENEFITS			\$ 267,553			\$267,553
OTHER						
Class 8 eCascadia 93 @ \$398,708.00			\$ 18,600,000	\$15,345,000	\$3,134,844	\$37,079,844
Class 6 eM2s 3 @ \$197,300.00			\$ 198,000	\$300,000	\$93,900	\$591,900
TOTAL OTHER			\$ 18,798,000	\$15,645,000	\$3,228,744	\$37,671,744
TOTAL DIRECT			\$ 19,484,543	\$15,645,000	\$3,228,744	\$38,358,287
INDIRECT CHARGES						
Overhead Rate = 75.08% of Personal + Fringe			\$ 515,457			\$515,457
TOTAL INDIRECT			\$ 515,457			\$515,457
TOTAL FUNDING			\$ 20,000,000	\$15,645,000	\$3,228,744	\$38,873,744